

- 18 -

## CLAIMS

1. A silicon layer growth method comprising dipping a multicrystalline silicon substrate in a solution comprising silicon and lowering the temperature of the solution, to thereby grow a silicon layer on the substrate, wherein the temperature is monotonic decreasing and the temperature drop rate of the solution during the dipping of the substrate in the solution is decreased with time.

2. The silicon layer growth method according to claim 1, further comprising, prior to the dipping of the multicrystalline silicon substrate in the solution, the step of etching the substrate such that the arithmetical mean surface roughness of a surface of the substrate falls within the range of 0.07 to 1  $\mu\text{m}$ .

3. A solar cell production method comprising the steps of:  
dipping a multicrystalline silicon substrate in a solution comprising silicon and lowering the temperature of the solution, to thereby grow a silicon layer on the substrate; and  
forming a pn junction in the silicon layer, wherein the temperature is monotonic decreasing and the temperature drop rate of the solution during the

- 19 -

dipping of the substrate in the solution is decreased with time.

4. The solar cell production method according to claim 3, further comprising, prior to the dipping  
5 of the multicrystalline silicon substrate in the solution, the step of etching the substrate such that the arithmetical mean surface roughness of a surface of the substrate falls within the range of 0.07 to 1  $\mu\text{m}$ .